The Wisconsin River TMDL

Overview and Status Update

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Wisconsin River Symposium
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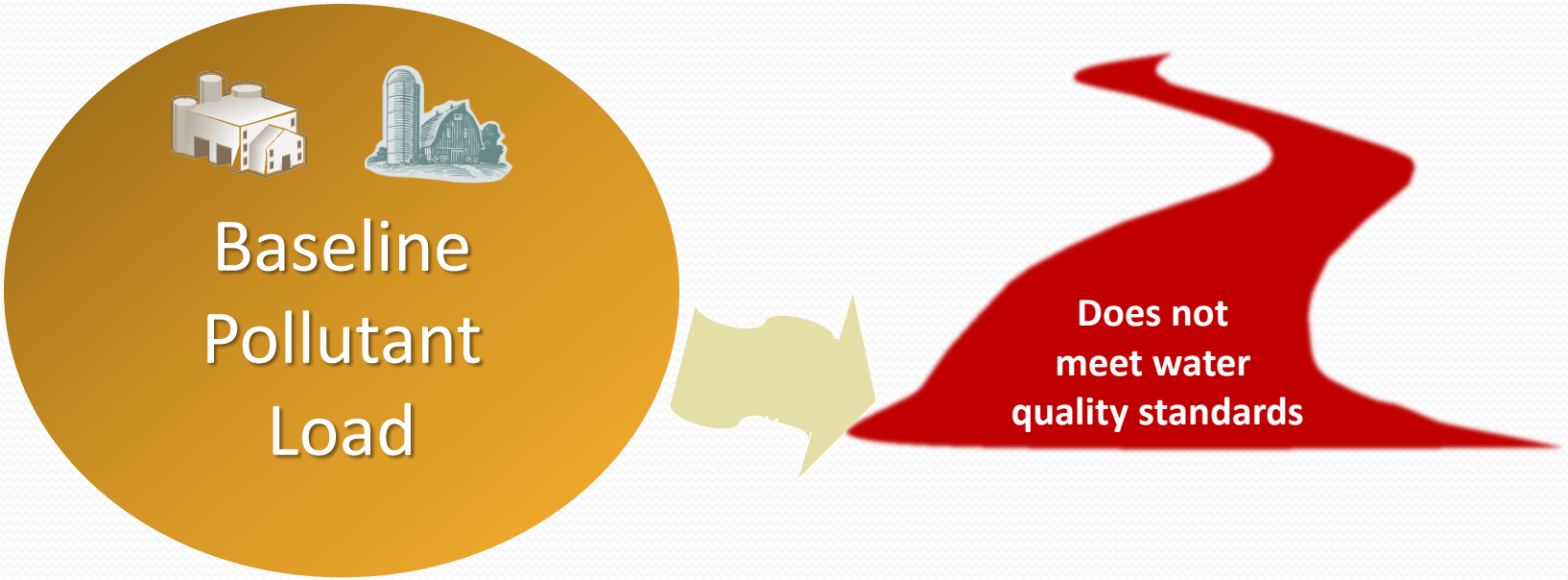
DEPT. OF NATURAL RESOURCES

Why develop a TMDL?



Developing a TMDL

What is the magnitude of the **T**otal **M**aximum **D**aily **L**oad for each subwatershed?

Developing a TMDL

Baseline Pollutant Load

How will the TMDL be apportioned among loading sources in each subwatershed?

Total Maximum Daily Load

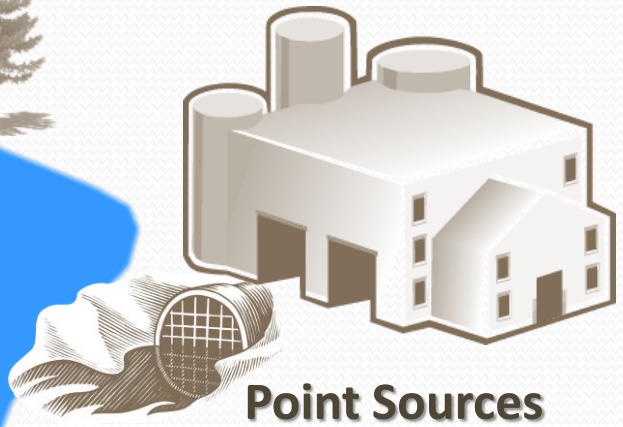
The amount of a pollutant a water body can receive and meet water quality standards

Non Point Sources (Load Allocation)

- Agricultural runoff
- Non-Permitted MS4s

Background Load

- Naturally occurring from wetlands, forests



Point Sources (Waste Load Allocation)

- Municipal Wastewater
- Industrial Wastewater
- Municipal Separate Storm Sewer Systems (MS4s)

TMDL

Load Allocation + Waste Load Allocation + Margin of Safety

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How did we get to a Wisconsin River TMDL?

2001
WDNR/USACE develop joint TMDL monitoring proposal for $1.5 million. ***Proposal not funded***

2010
WNDR receives Section 22 Planning Assistance from USACE

2009 – 2013
Wisconsin River TMDL Monitoring

2008
First Pontoons and Politics at Petenwell Castle Rock

1995 2000 2005 2010 2015

1996
Petenwell Castle Rock Comprehensive Management Plan

2004
WDNR proposal to USEPA for river water quality monitoring. ***Proposal not funded***

2009
State legislature appropriates $750,000 ($150,000/yr. for 5 years) for monitoring upstream of Castle Rock

Wisconsin River TMDL

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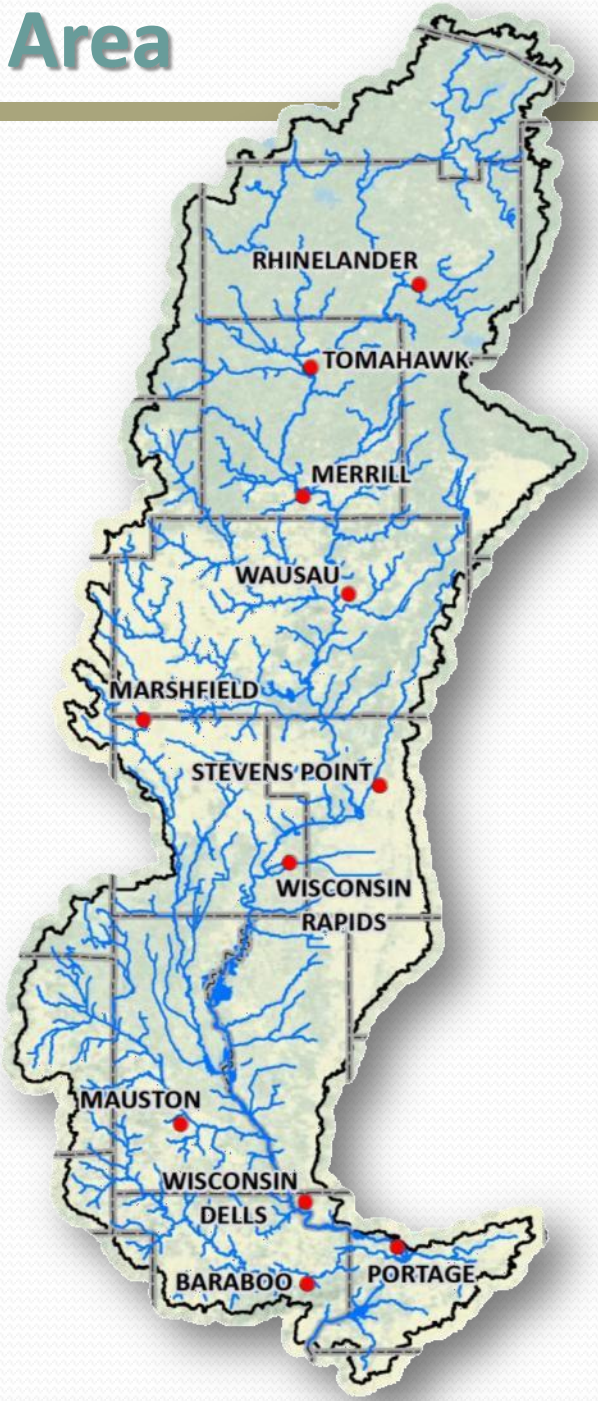
The Wisconsin River TMDL Study Area



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Wisconsin River TMDL Development Steps

Monitoring

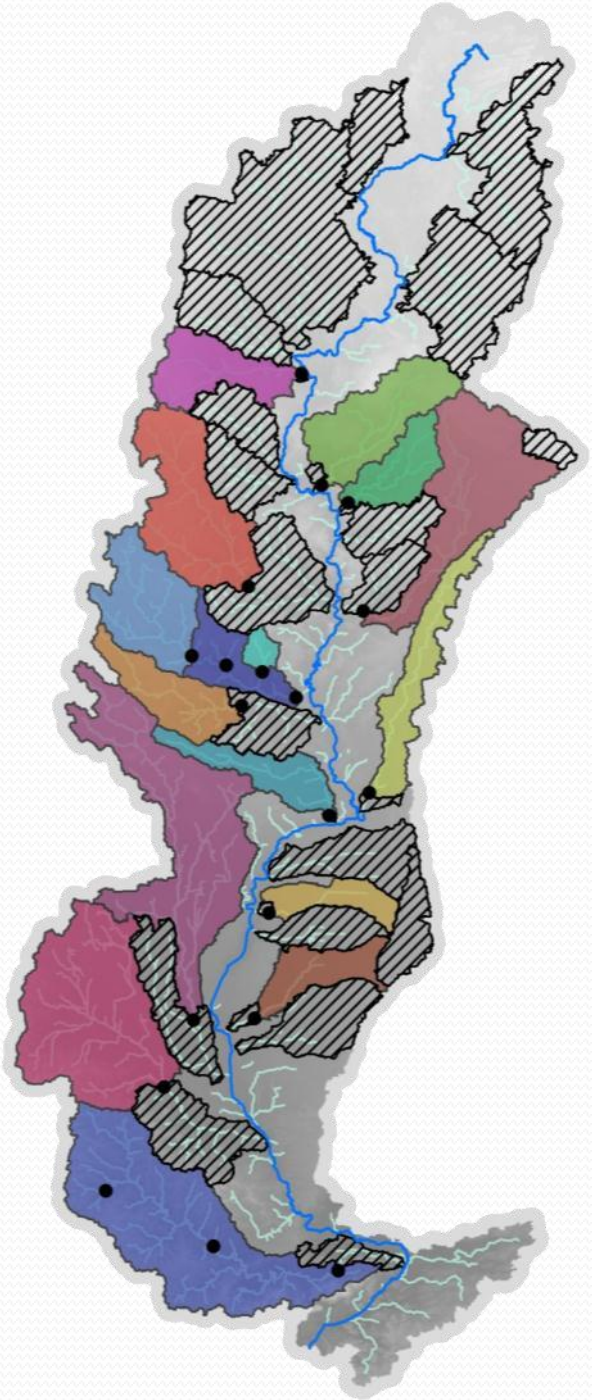
Conceptualization

Modeling

Allocations

- Civic Engagement
- Public Outreach/Communications

Draft TMDL → Internal Review / Public Comment → Final TMDL → EPA Approval → Implementation



Tributary Watershed Loads

19 stations with daily discharge & bi-monthly water quality

= ungauged tributary area

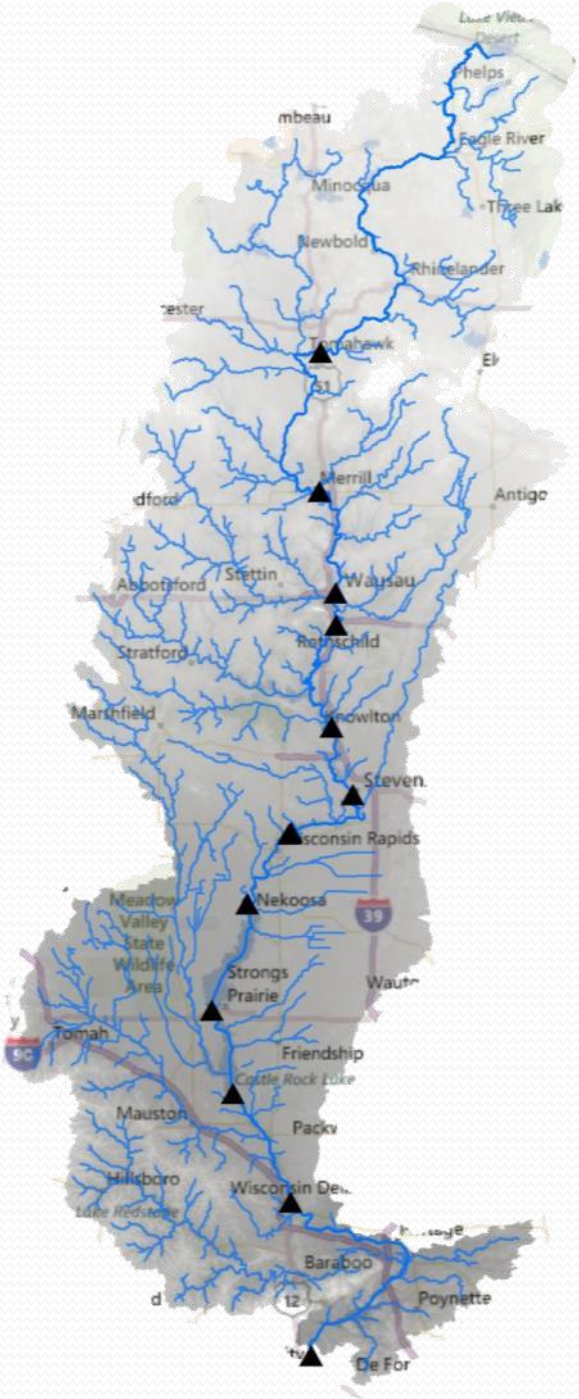
Monitoring

Concept-ualization

Modeling

Allocations

Main Stem Loads



- ***13*** stations with daily discharge & bi-monthly water quality

Monitoring

Concept-ualization

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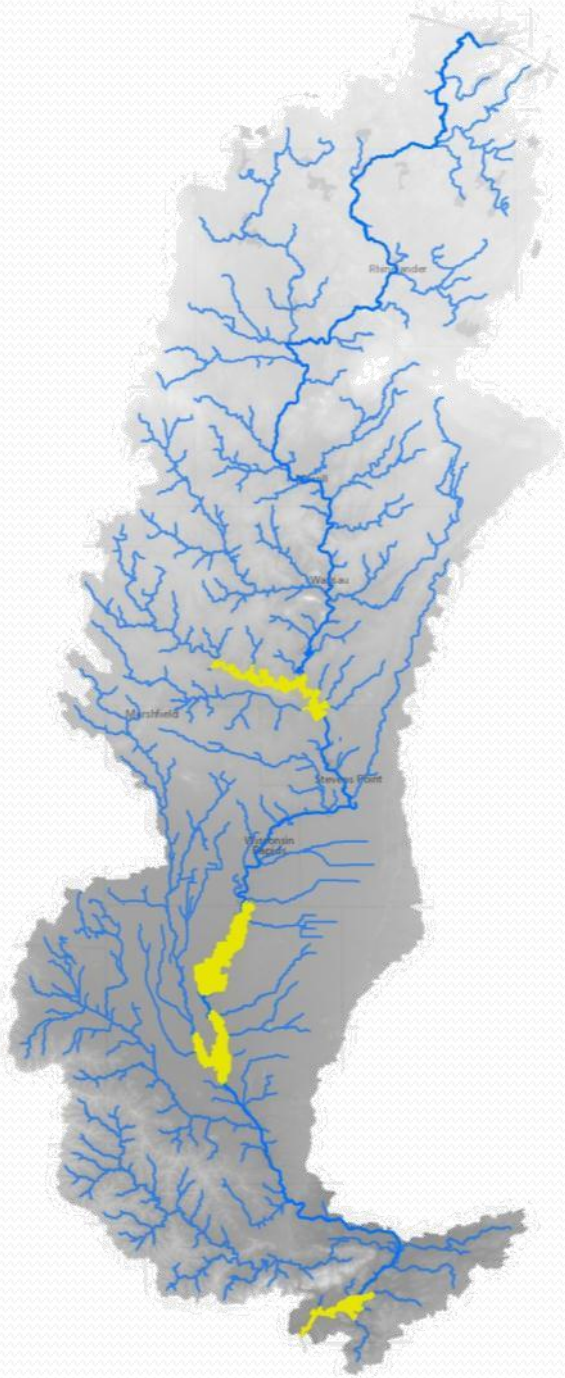
Allocations



Reservoir Monitoring

5 major reservoirs
Big Eau Pleine, Lake Dubay, Petenwell, Castle Rock , & Lake Wisconsin

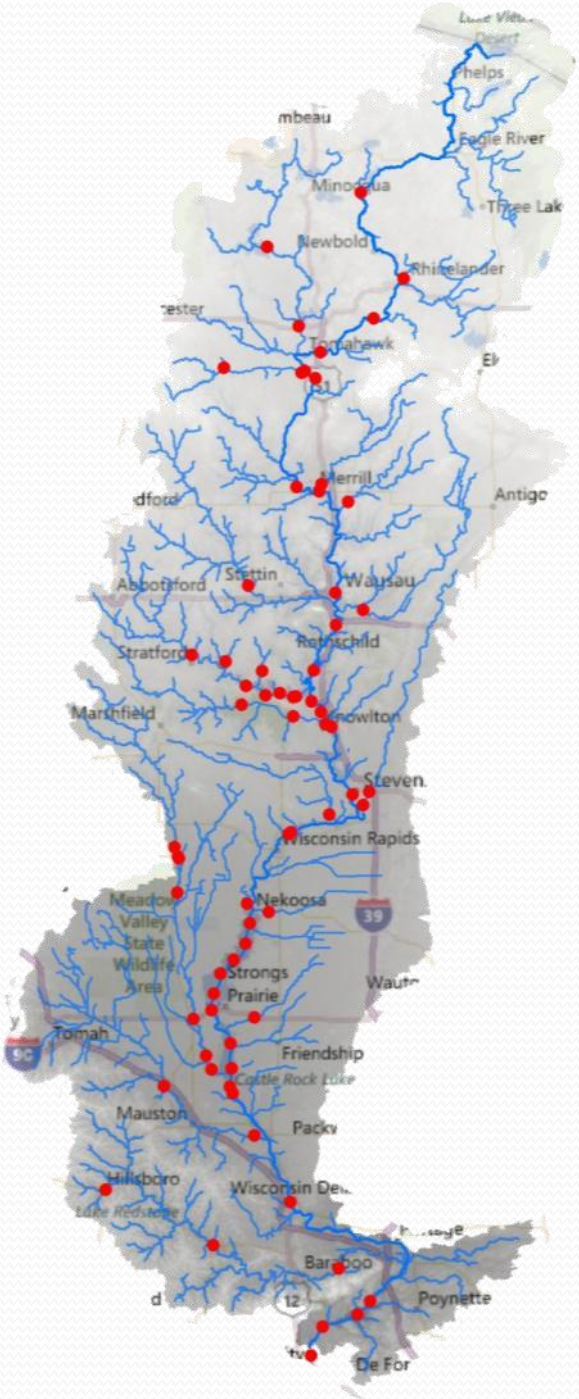
Monitoring

Concept-ualization

Modeling

Allocations

Phosphorus Evaluation Sites



- ***98*** stations with monthly P samples between May – October 2012 with 31 sites proposed for re-sample in 2013

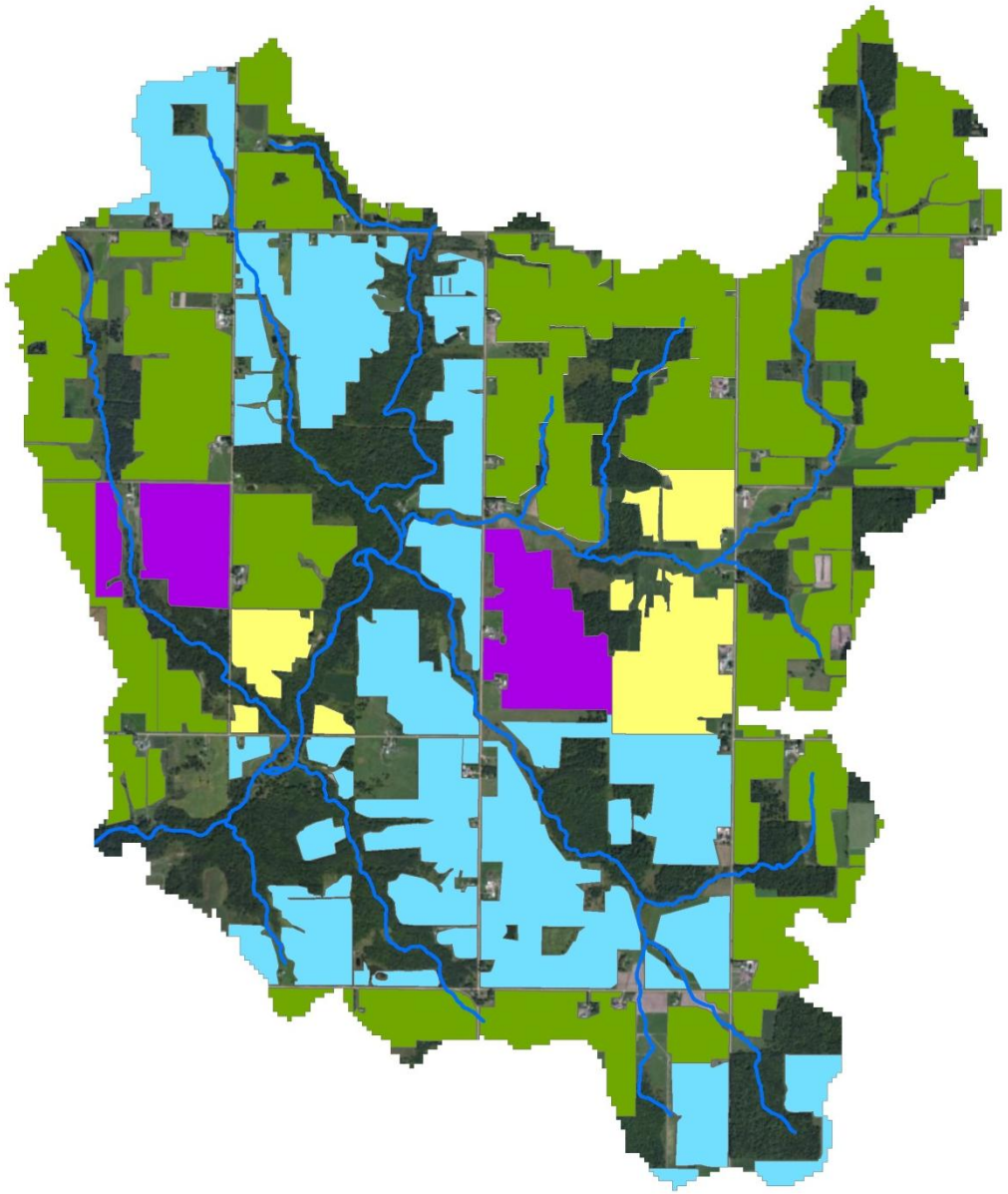
Monitoring

Concept-ualization

Modeling

Allocations

Conceptualization



Subwatershed Land Management

- Corn - Soybean
- Dairy Rotation (C-C-O-A-A-A) (No Storage / Manure)
- Dairy Rotation (C-C/S-O-A-A-A) (Storage)
- Dairy Rotation (C-O-A-A-A) (No Storage)

Monitoring

Concept-ualization

Modeling

Allocations

Watershed Modeling – SWAT

2009 – 2013 Conditions

- Climate
  Precipitation, Temp, etc.
- Land Management
  Agriculture, Urban
- Land Cover
- Soils
  Type and Attributes
- Topography
  Slope
- Hydrography
  Flow accumulation, Internal drainage, groundwater
- Point Sources

WATERSHED MODEL **(SWAT)**

Model Calibration Required

STOP

Watershed Model Calibrated Outputs

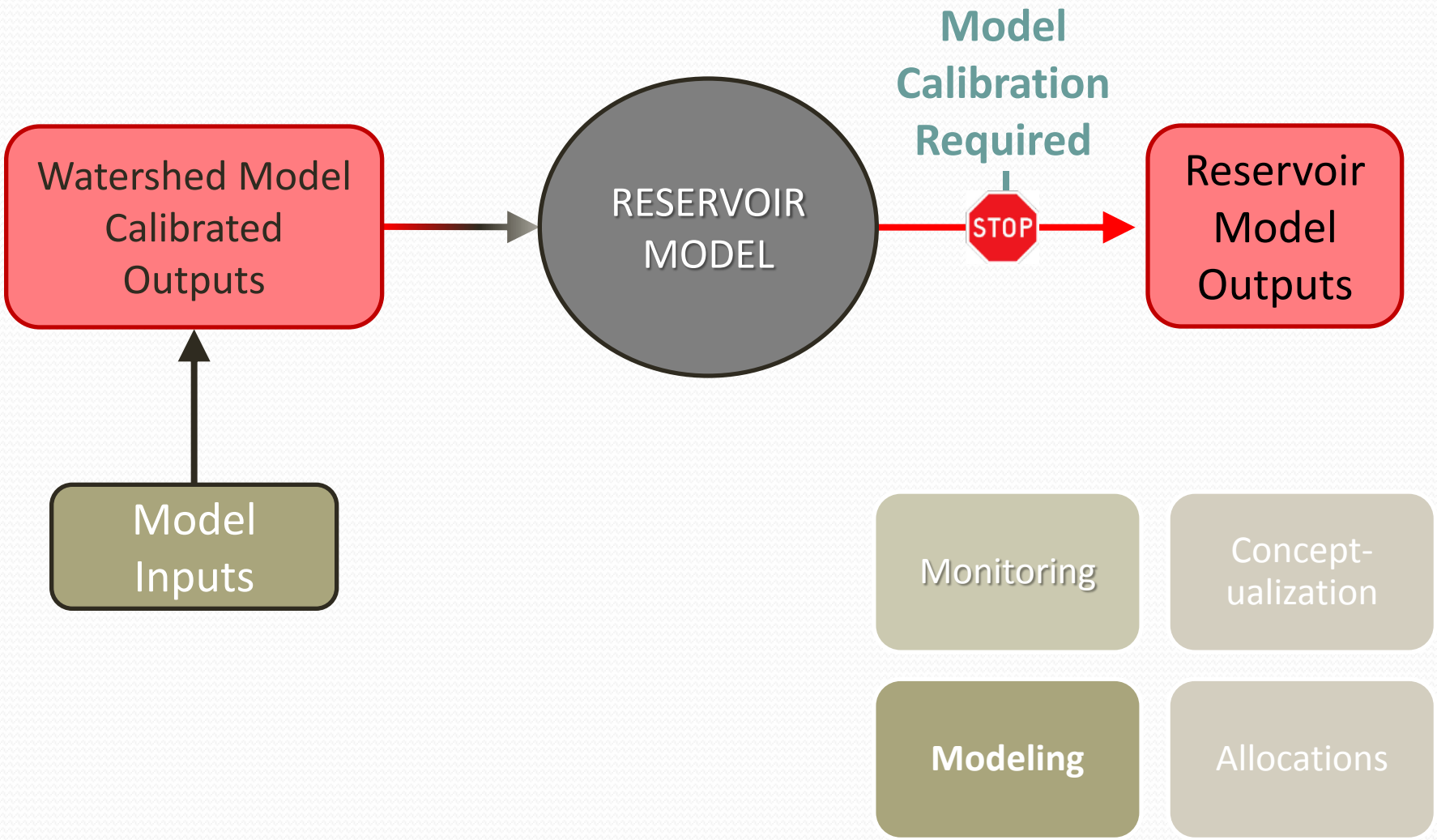
Monitoring

Concept-ualization

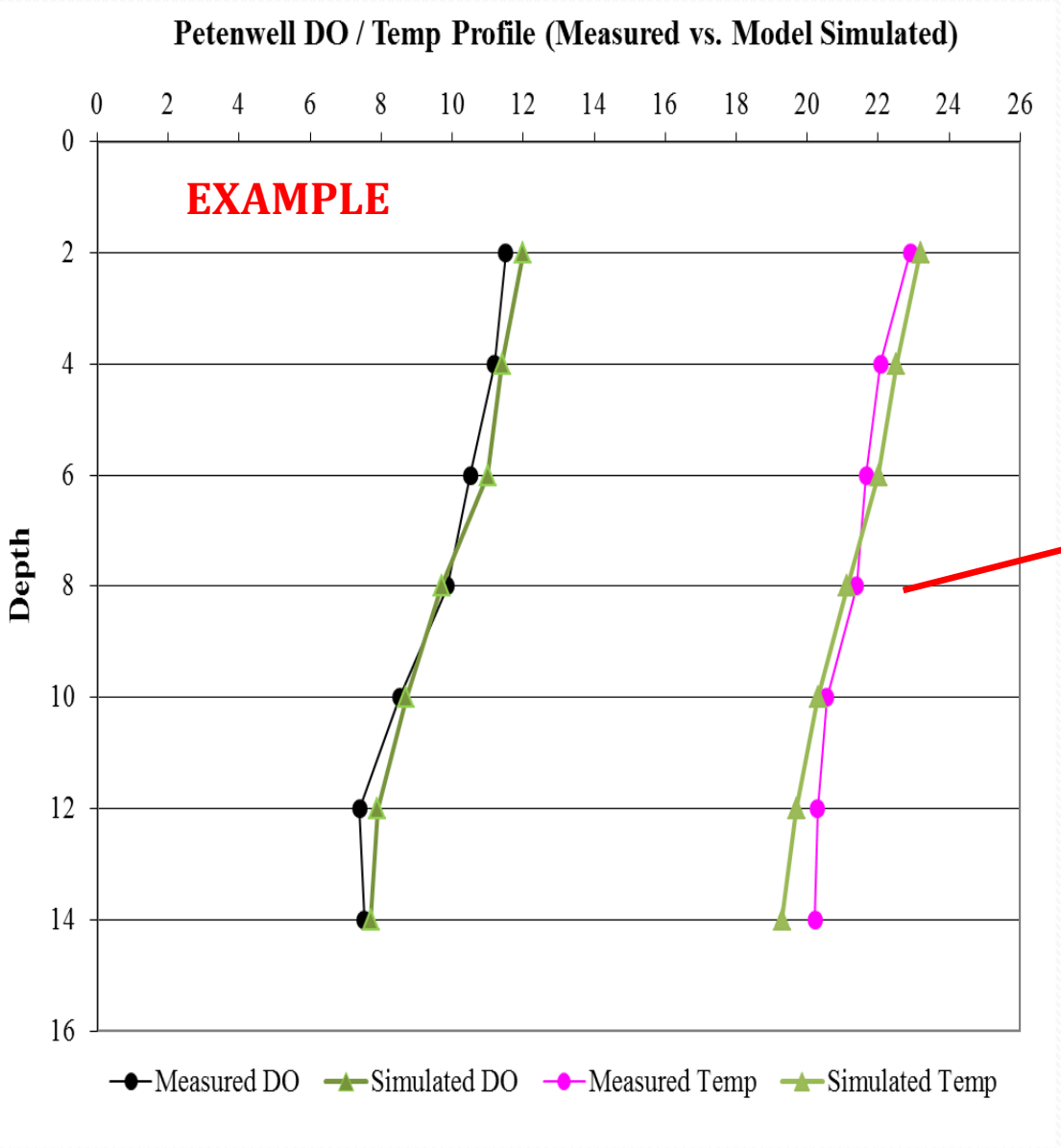
Modeling

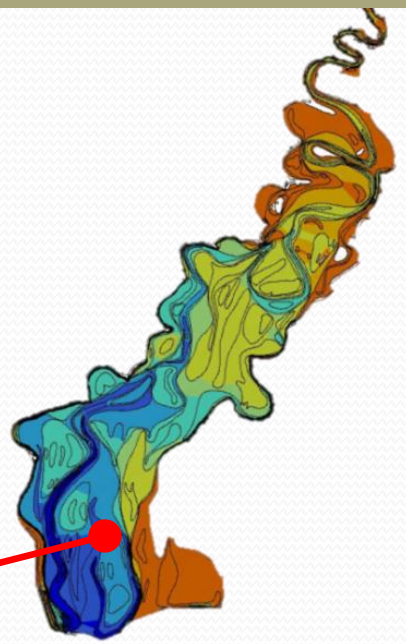
Allocations

WRB Model Approach – Reservoir



Integrating Monitoring Data into Models





Monitoring

Concept-ualization

Modeling

Allocations

TMDL Allocations

Proportional Allocation Method

- Proportional allocation method is developed from **baseline conditions**
- **Baseline Conditions** reflect current regulatory requirements.

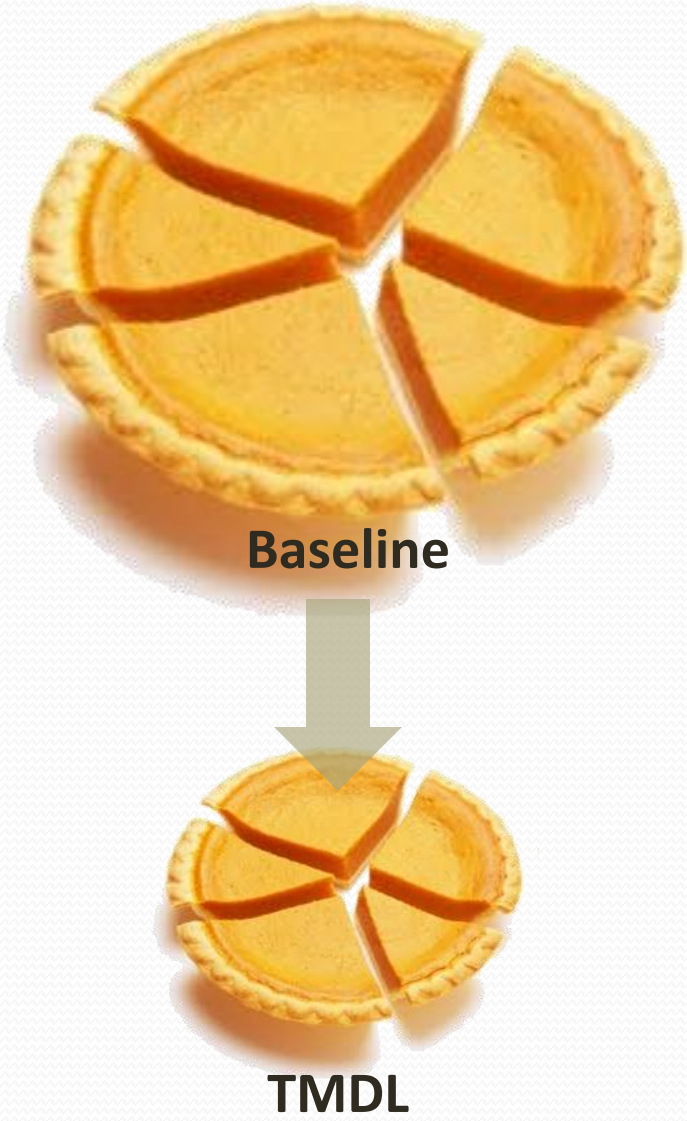
Monitoring

Concept-ualization

Modeling

Allocations

TMDL Allocations

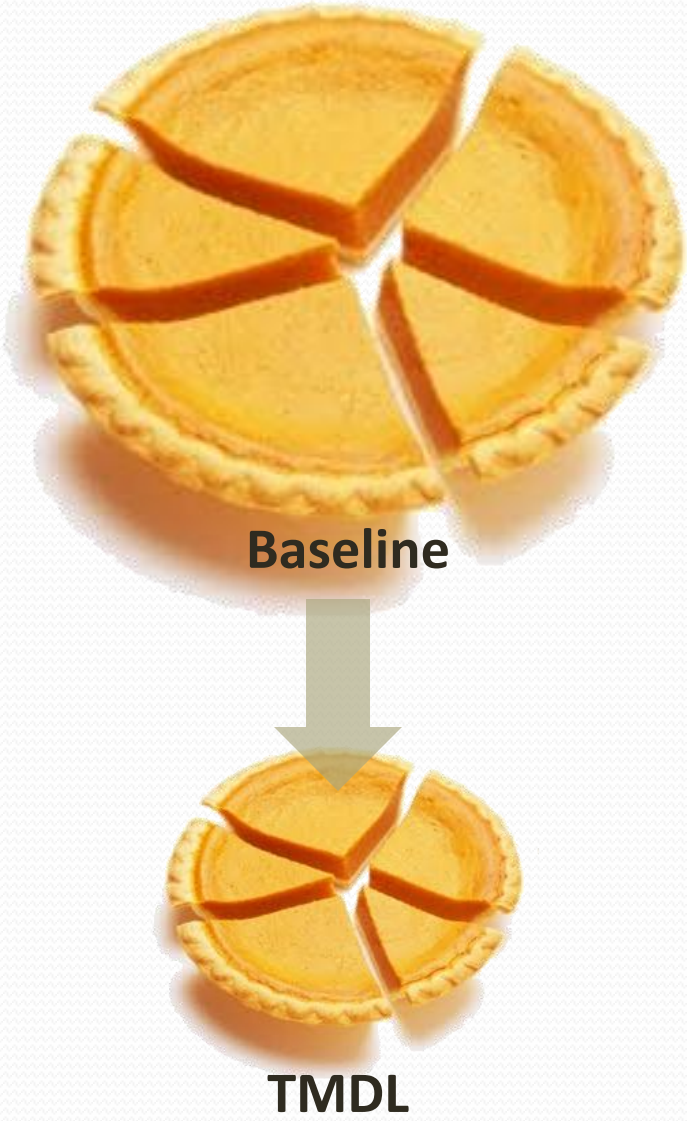


Proportional Allocation Method

The TMDL load for each reach is divided proportionally according to each source's baseline load contribution

Monitoring
Concept-ualization
Modeling
Allocations

TMDL Allocations



Proportional Allocation Method

Baseline loads are only used to allocate the allowable loads among sources --they do not affect the allowable loads themselves.

Monitoring | Concept-ualization | Modeling | **Allocations**

TMDL Development - Current Status

Monitoring

- **2009-12** Three years of monitoring data collected
- **2013** Monitoring to continue through end of year

Conceptualization

- **2013** TMDL Team Member(s) will visit counties & municipalities to collect land use and land management data

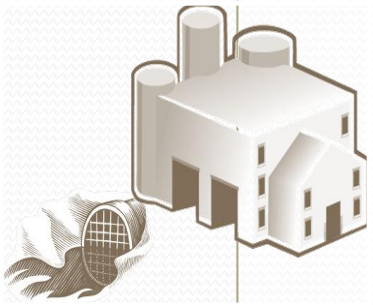
Modeling

- **2013** (now) Refining technical approach
- **2013** (later) Model setup and preliminary test runs

Allocations

- **2015/16** Allocation process expected to begin

TMDL Implementation Mechanisms



Point sources

Wisconsin Pollutant Discharge Elimination System (WPDES) permits

- Municipal/Industrial Wastewater
- Regulated MS4s

Nonpoint sources

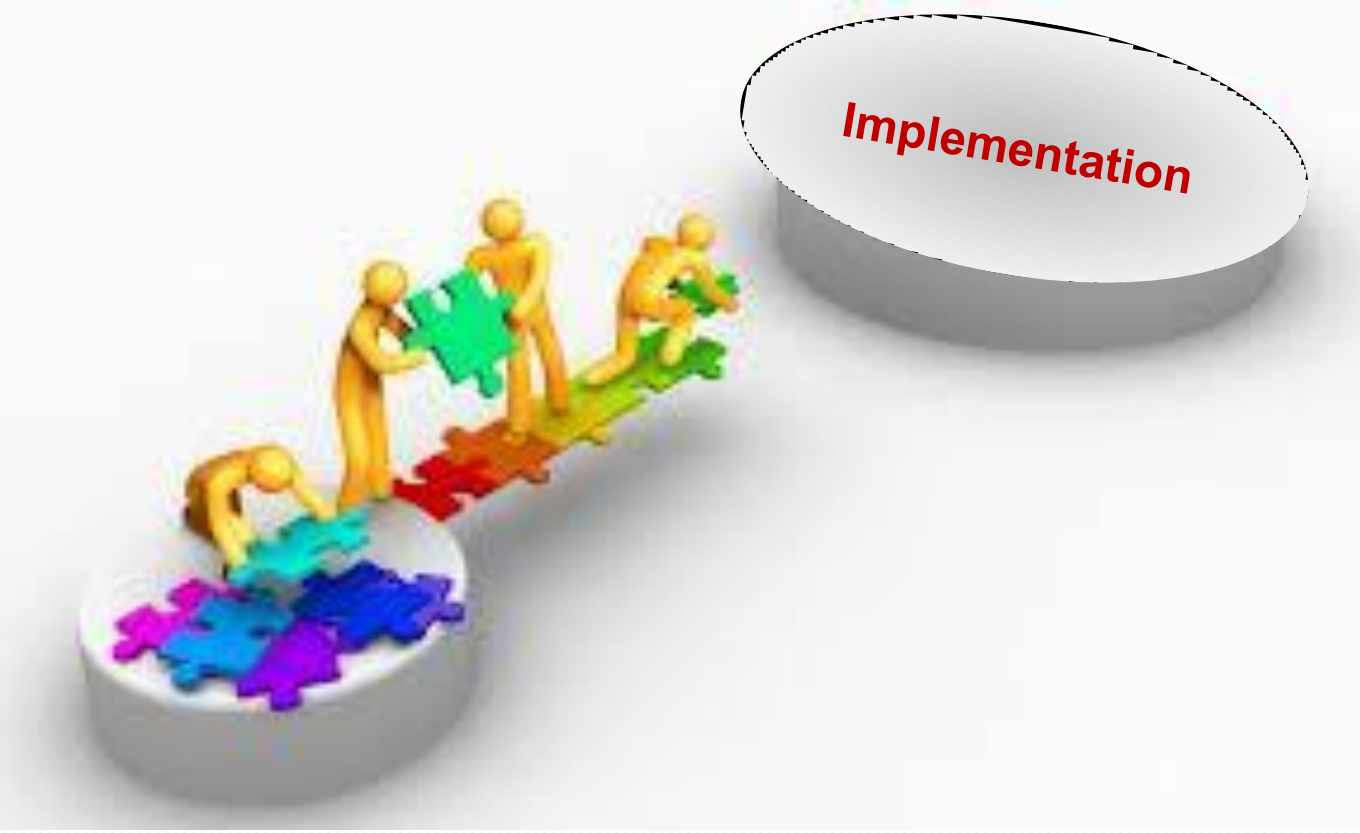
- NR 151 Performance Standards
- Watershed Plans (9 Key Element)
- Farmer Led Councils

Other

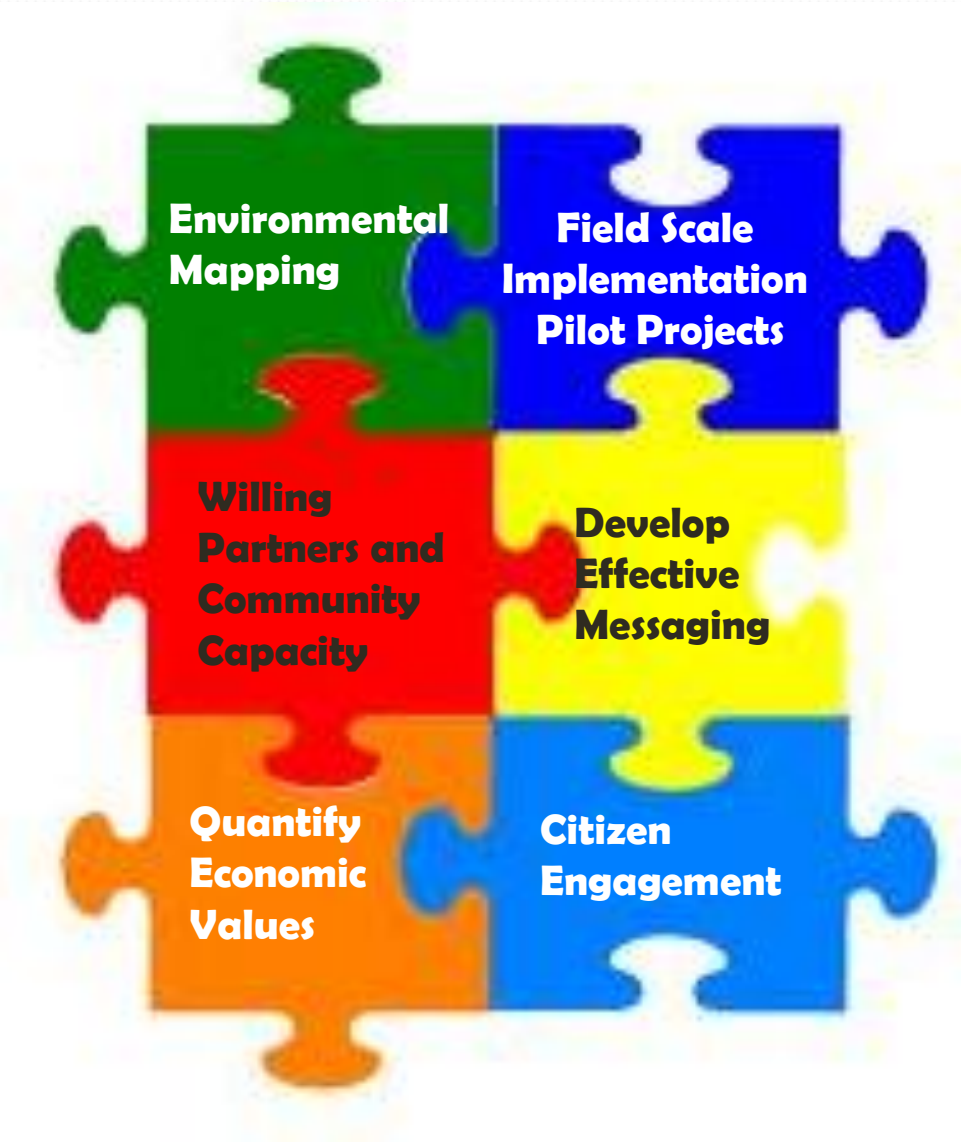
- Local construction site ordinances
- Manure storage ordinances
- Shoreland zoning ordinances

TMDL Implementation

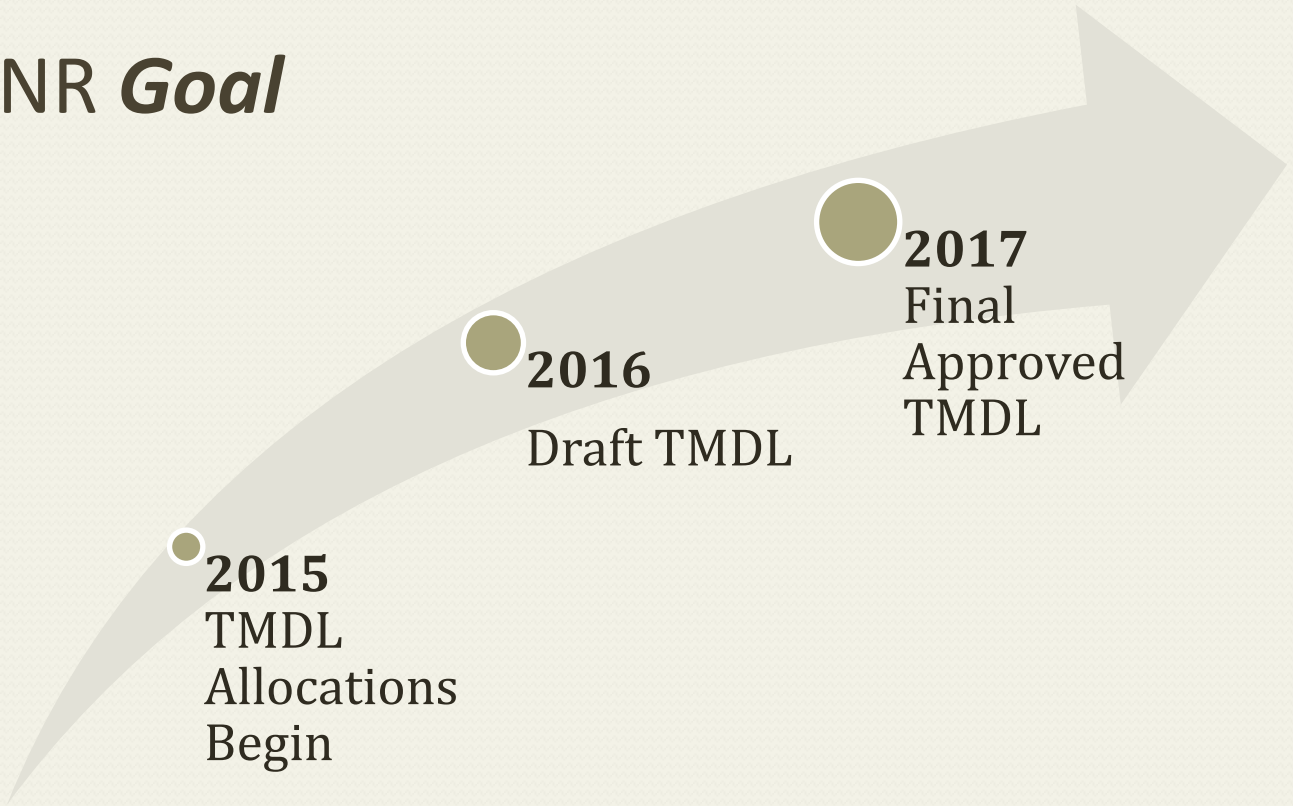
The TMDL serves as the foundation for developing a detailed implementation plan



Developing the Foundation for Implementation



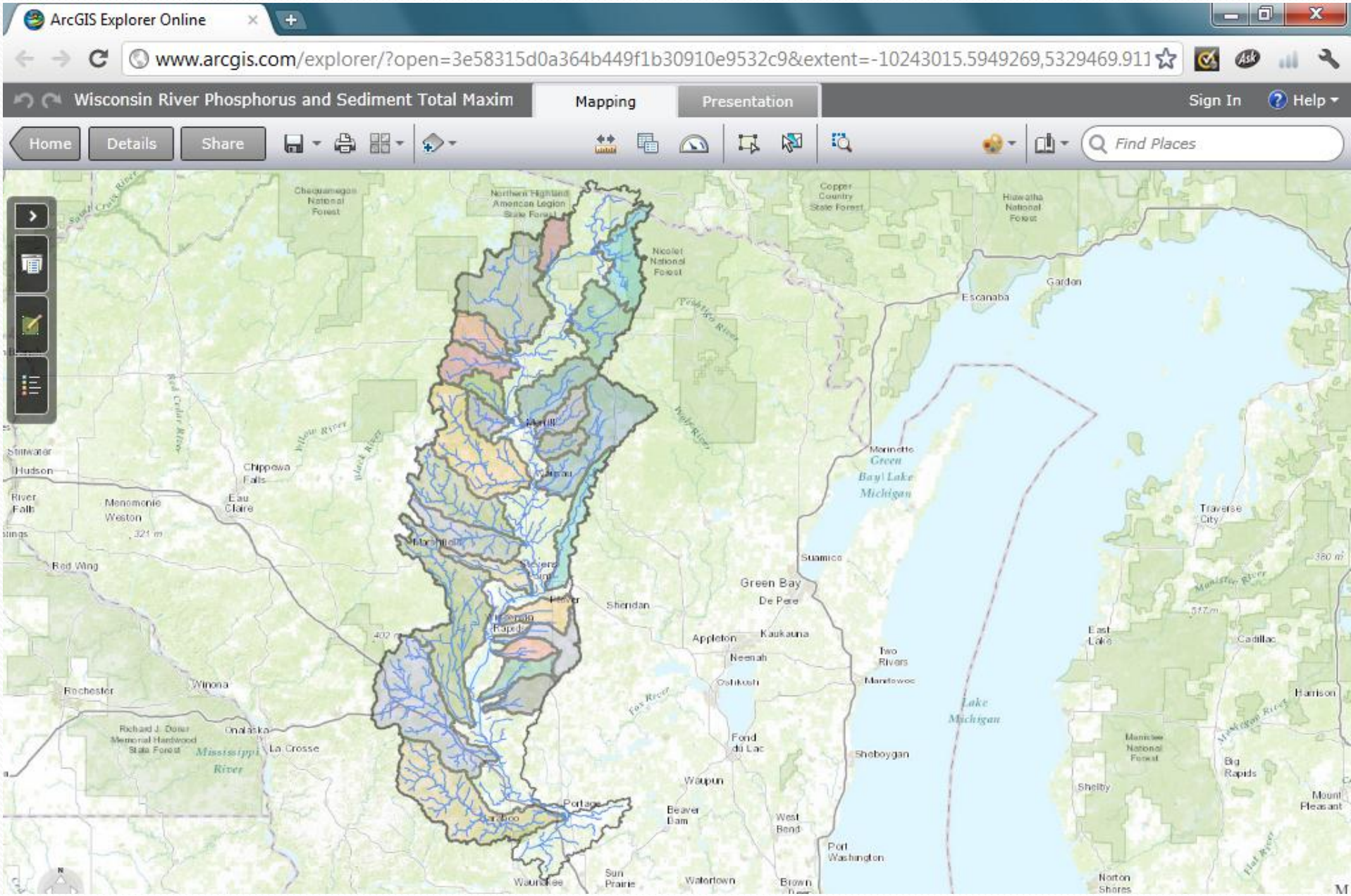
TMDL Development Timeline



The Reality

- TMDL schedule is contingent on availability of staff and funding resources
- Wisconsin River TMDL is a high priority for WDNR, however, spending restrictions and federal funding cuts have reduced available resources

Coming soon…


ArcGIS Explorer Online
www.arcgis.com/explorer/?open=3e58315d0a364b449f1b30910e9532c9&extent=-10243015.5949269,5329469.911
Wisconsin River Phosphorus and Sediment Total Maxim
Mapping
Presentation
Sign In
Help
Home
Details
Share
Find Places
Chequamegon National Forest
Northern Highland American Legion State Forest
Nicolet National Forest
Copper Country State Forest
Hiawatha National Forest
Escanaba
Garden
Menominee
Green Bay
Lake Michigan
Chippewa Falls
Eau Claire
Menomonie
Weston
Red Wing
Rochester
Winona
La Crosse
Richard J. Dorer Memorial Hardwood State Forest
Mississippi River
Sheridan
Appleton
Kaukauna
Neenah
Oshkosh
Two Rivers
Manitowoc
Sheboygan
Fond du Lac
Waupun
Beaver Dam
Portage
West Bend
Port Washington
Waukesha
Sun Prairie
Watertown
Brown Deer
Suamico
Green Bay
De Pere
Traverse City
East Lake
Cadillac
Harrison
Shelby
Big Rapids
Mount Pleasant
Norton Shores
Manistee National Forest